

## Fault-Tolerant Relative Navigation System (RNS) for Docking, Phase I

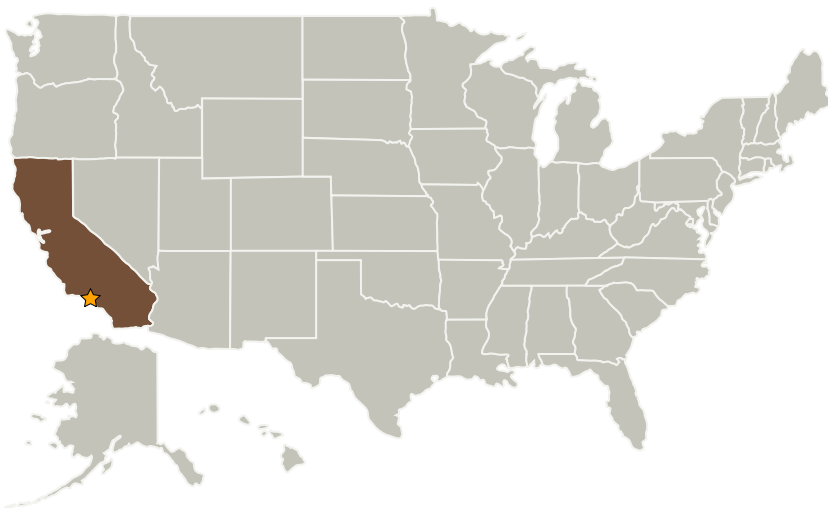


Completed Technology Project (2009 - 2009)

## Project Introduction

A method is proposed to develop a sensor fusion process for blending GPS/IMU/EO data for fault tolerant rendezvous and docking of spacecraft. The methodology takes advantage of analytic redundancy between the GPS and EO sensor technology. Using advanced fault detection, identification, and reconfiguration (FDIR) technology, the method will guarantee navigation functionality in the presence of failures in either the GPS or the EO system guaranteeing safety of operations in the safety critical docking operation.

## Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Jet Propulsion Laboratory (JPL)	Lead Organization	NASA Center	Pasadena, California
SySense, Inc.	Supporting Organization	Industry	El Segundo, California

## Primary U.S. Work Locations

California



Fault-Tolerant Relative Navigation System (RNS) for Docking, Phase I

## Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Organizational Responsibility	1
Project Management	2
Technology Areas	2

## Organizational Responsibility

## Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

## Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

## Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

# Fault-Tolerant Relative Navigation System (RNS) for Docking, Phase I

Completed Technology Project (2009 - 2009)



## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

## Technology Areas

**Primary:**

- TX17 Guidance, Navigation, and Control (GN&C)
  - └ TX17.5 GN&C Systems Engineering Technologies
    - └ TX17.5.2 GN&C Fault Management / Fault Tolerance / Autonomy